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Goal Motives and Multiple-Goal Striving in Sport and Academia: A Person-Centered Investigation of Goal Motives and Inter-Goal Relations

Abstract

Objectives: This investigation extended the goal striving literature by examining motives for two goals being pursued simultaneously. Specifically, it examined how student athletes' autonomous and controlled motives for their sporting and academic goals were associated with inter-goal facilitation and interference.

Design: Cross-sectional survey.

Methods: Student athletes (n = 204) from universities in the United Kingdom identified their most important sporting and academic goals. They then rated their autonomous and controlled motives for these goals and completed questionnaires assessing inter-goal facilitation and interference.

Results: Using a person-centered approach via latent class analysis, we identified three distinct classes of goal motives. Group difference analyses showed that the classes with higher autonomous motives reported greater facilitation from their academic goal to their sporting goal.

Conclusions: Extending the previous literature, the findings demonstrate the benefits of autonomous motives when simultaneously pursing goals in sport and academia.

Key words

Goals, motivation, inter-goal facilitation, inter-goal interference, latent class analysis, self-determination theory

Introduction

Grounded in Self-Determination Theory (SDT)[1], a major principle of the Self-Concordance (SC) model[2] is that goal motivation can be autonomous or controlled. Autonomous goal motivation is underpinned by personal interest, importance or enjoyment in goal pursuit. Controlled motivation is underpinned by internal or external pressures. Autonomous goal motivation is consistently associated with higher levels of goal attainment and well-being[3,4,5].

SC model research has generally examined one goal in a single domain, such as education[6], workplace[7], health[8], and sport[9,10,11]. In reality, individuals are often simultaneously pursuing multiple goals in different contexts[12]. The literature has not fully explored the role of goal motivation in such situations. To the best of our knowledge, only one study has explored motivation in multiple-goal pursuit. Gorges, Esdar and Wild[13] linked goal self-concordance (autonomous motives minus controlled motives) to the affective responses associated with multiple goal conflict. To generate feelings of goal conflict, junior scientists considered an instance where they had recently "felt torn" between two activities in their research and teaching tasks. Participants also identified a goal associated with each of these activities, and reported their motives for these goals. When goal self-concordance was high (reflective of higher autonomous and lower controlled motives), goal conflict was positively associated with positive affect. When goal self-concordance was low, goal conflict was positively associated with negative affect. In line with the principles of SDT[1], Gorges, Esdar and Wild[13] suggested that high goal self-concordance can protect individuals from negative affect when experiencing goal conflict. They also suggested that for self-determined goals, conflict may be viewed as challenging rather than frustrating.

Gorges, Esdar and Wild's[13] findings show of the motives underpinning concurrent goal pursuits are important, as they can moderate affective responses to goal conflict. However, they only investigated goal conflict in one domain. In addition, the relations between goals were not examined. When pursuing multiple goals, individuals may experience facilitation, as well as conflict[14]. According to Riediger and Freund[14], inter-goal facilitation – where the pursuit of one goal increases the chance of success in the other goal - occurs through instrumental relations (progress in one goal

resulting in progress towards the other goal) and overlapping goal strategies (actions having positive effects on both goals). Inter-goal interference, whereby pursing one goal reduces the likelihood of attaining another goal, operates through resources constraints (striving for one goal detracts time, effort or resources from another goal) or incompatible goal strategies (strategies for one goal conflict with completing another goal). Facilitation is linked with higher levels of goal pursuit, whereas interference is negatively associated with well-being[14]. To date, the association between goal motivation and these inter-goal relations has not been examined within the literature. Thus, the major aim of the present study was to extend the literature by exploring how goal motivation is linked to inter-goal relations in multiple goal striving.

Aligned with the principles of SDT[1], it could be hypothesized that autonomous motives may lead to higher levels of facilitation, and lower interference when pursuing multiple goals. Autonomous motivation is considered to be more adaptive, as it reflects greater integration with the self. As such, autonomous motivation can lead to a range of positive outcomes, and buffer negative outcomes. Conversely, controlled motivation is predicted to lead to negative outcomes, with no buffering effect. Previous goal motives research has generally supported this notion. For example, Healy et al[11] found autonomous goal motives to be positively and negatively related to well- and ill-being respectively. Controlled goal motives were positively related to ill-being, and unrelated to well-being. In the present study we expected that autonomous goal motives would be positively related to facilitation (a positive goal-related outcome) and negatively associated with interference (a negative goal-related outcome). We also hypothesized that controlled goal motives are positively associated with interference, and unrelated to facilitation. We explored these hypotheses in university student athletes striving for both sporting and academic goals, as while some student athletes struggle to balance their sporting and academic goals, others are more successful at managing multiple goal pursuits[15]. Thus, variations in goal motivation might be associated with differences in student athletes' inter-goal relations.

In the original SC model, Sheldon and Elliott[1] combined autonomous and controlled goal motives to assess overall goal self-concordance. Research has also examined the two motives

separately to explore the unique contribution of autonomous and controlled motives to goal-related outcomes[3,4,11]. To the best of our knowledge, different combinations of autonomous and controlled goal motives have not been examined in the literature. In research from the wider SDT literature[16] individuals have reported high levels of both autonomous and controlled general motivation, or low levels of all motivational regulations. However, the SC model research has not examined if individuals can strive for their goals with high autonomous and high controlled motives (or other combinations of goal motives). Thus, in this investigation we used a person-centered approach, which involved the creation of goal motives profiles. This was particularly relevant to the present study, as we could create profiles including the autonomous and controlled goal motives for both the academic and sporting goal.

Person-centered research from the wider SDT literature, examining motivation in general as opposed to specific goal motivation, has demonstrated that more optimal motivation profiles (i.e. high autonomous, low controlled motivation) are associated with better outcomes (e.g. performance, effort) than those with less optimal profiles (i.e. low autonomous, high controlled motivation or moderate autonomous, moderate controlled motivation)[16,17]. Thus, we expected that student athletes with more adaptive goal motivation profiles would report higher facilitation and lower interference between their sporting and academic goals, whereas those with less adaptive goal motivation profiles would report lower facilitation and higher interference.

Methods

Ethical approval was given from the University of Birmingham and Newman University. We recruited 204 students (103 male, 101 female, *M*age = 21.00 years, *SD*age = 2.09) from universities in the United Kingdom (UK), who had been participating in their sport for 7.69 ± 5.29 years. Students were contacted online through sport administrators, academic staff and social media, and in person at a major national student competition.

A battery of questionnaires was completed either online or on paper. Data collection occurred around 4-6 weeks into each semester of the academic year. We chose this point as we felt that students would have commenced goal striving for both their goals.

Participants identified their most important sporting and academic goal that they would be working towards over the remaining academic year. Participants then rated their motivation for each goal. This consisted of four items related to their extrinsic ("Because someone else wants you to"), introjected ("Because you would feel ashamed, guilty, or anxious if you didn't"), identified ("Because you personally believe it's an important goal to have") and intrinsic ("Because of the fun and enjoyment the goal provides you") goal motives on a 1 *(not at all)* to 7 *(very much so)* scale.

The Inter-goal Relations Questionnaire[14] was completed to assess facilitation and interference. The facilitation scale had one item each for instrumental goal relations ("The pursuit of my sporting goal sets the stage for the realization of my academia goal") and overlapping goal attainment strategies ("How often has it happened that you did something in the pursuit of your sporting goal that was simultaneously beneficial for your academic goal?"). For the interference scale, three items assessed resource constraints (e.g., "How often has it happened that because of the pursuit of your sporting goal, you could not invest as much energy into your sporting goal as you would have liked to?"), while the fourth measured incompatible goal attainment strategies ("How often has it happened that you did something in the pursuit of your academic goal that was incompatible with your sporting goal?"). Participants rated the impact of both goals on the other goal (i.e. the impact of the sporting goal on their academic goal and vice versa) in reference to the last month on a 1 (*Never or rarely)* to 5 *(Very often)* scale. For each goal, mean facilitation and interference scores were created from the respective items.

To create goal motives profiles, latent class analysis (LCA) was performed using the MPlus software[18] with maximum likelihood (ML) estimation. We included in the analysis the four motivation regulations for each goal; eight variables were used in total. This approach is different to previous SC model research[3,4,11], where the extrinsic and introjected, and identified and intrinsic scores have been aggregated to form controlled and autonomous goal motives respectively. Our approach was based on two reasons. First, the four items represent separate (albeit related) motivation regulations. Additionally, previous research has often found these goal motives aggregates to have poor internal reliability[3,11]. Unlike previous studies, in our analyses we were unable to correct for

measurement error. Thus, using the individual goal motives variables in our analyses ensured that our findings would not be impacted by poor internal reliability.

While there is no "gold standard" for determining the optimum number of classes in LCA, it is worthwhile to explore a range of solutions and select the number of classes based on the goodness-of-fit indices, the nature of the classes, and theoretical considerations[19,20]. It is also possible to test if a more complex model offers a better fit to the data than a more parsimonious solution. We examined the model fit criteria from analyses with one up to five class solutions to determine the optimal number of classes. The bootstrapped log-likelihood ratio test (BLRT) was primarily used as this is more effective than other fits indices for sample sizes of $n < 200$[21]. We also inspected the entropy criterion values; higher values indicate a better model fit[22]. Furthermore, the goal motives means for each class were examined in terms of relevance to theory. We employed a multivariate analysis of variance (MANOVA) to examine between-class differences in interference and facilitation.

Results

The data were screened for multivariate outliers using Mahalanobis distance. Consequently, we removed 9 participants, leaving a final sample of 195 participants. Table 1 displays descriptive statistics and scale reliabilities. The internal reliabilities for both facilitation variables were slightly lower than those for the interference variables. This may be explained by the facilitation subscale only containing two items whereas the interference subscale contained four items[23].

Table 2 displays the fit indices for the LCA. Using the BLRT, entropy values and our theoretical considerations, we accepted the 3-class solution. Table 1 displays the goal motives and inter-goal relations across the three classes. Class 1 represented 10.7% of the sample (n =21) who reported high intrinsic and low extrinsic motives for their sporting goal, and moderate levels of all other regulations for both goals. Class 2 contained the largest percentage of the sample (48.7%; n = 95). Individuals in this group reported high intrinsic and identified, and low extrinsic motives for both goals. Furthermore, they had low introjected sport goal motives, and moderate introjected academic goal motives. Class 3 represented 40.5% (n = 79) of the sample. Individuals reported high intrinsic, and moderate extrinsic and introjected motives for both goals. They also reported moderate levels of

identified sport goal motives and intrinsic academic goal motives. Based on our theoretical underpinnings[2], Class 2 was deemed the most adaptive, given the relatively high autonomous and low controlled goal motives. Reflecting the relative levels of goal motives reported in the different classes, we labelled Class 1 as "Moderate AM, Moderate CM", Class 2 as "High AM, Low CM" and Class 3 as "High AM, High CM".

Prior to testing for between-class differences in inter-goal relations, we checked that the analysis would not be confounded by the unequal class sizes. There were no outliers and there was a sufficient dependent variable to cell size ratio, hence, we conducted a MANOVA analysis[24]. We examined the Box M and Levene's Tests to check the equality of covariances and variances, respectively. These tests were all non-significant (ps > 0.05), with the exception of interference from the academic goal on the sporting goal. As such, we adjusted our alpha level to $p < 0.025$ for this variable[25].

The MANOVA revealed a significant multivariate effect [Pillai's $V = .09$, F (8, 378) = 2.29, $p = 0.02$, partial $\eta^2 = .05$]. There was also a significant univariate effect for academic to sporting goal facilitation [F (2, 192) = 7.66, $p = 0.001$, partial $\eta^2 = .07$]. The univariate effects were non-significant for academic to sporting goal interference [F (2, 192) = .81, $p = 0.45$, partial $\eta^2 = .008$], for sporting to academic goal interference [F (2, 192) = 0.09, $p = .91$, partial $\eta^2 = .001$] and for sporting to academic goal facilitation [F (2, 192) = 1.94, $p = 0.15$, partial $\eta^2 = .02$].

Using Bonferroni-corrected pairwise comparisons we examined the nature of the significant univariate effect. The Moderate AM, Moderate CM class reported less facilitation than the High AM, Low CM ($p = 0.001$) and High AM, High CM ($p = 0.001$) classes, with no significant difference between the latter two classes ($p = 1.00$).

Discussion

Using a person-centered approach, this study explored combinations of motivation regulations for sporting and academic goal strivings. We expected that individuals with more adaptive goal motives profiles (i.e. higher autonomous and lower controlled goal motives) would report higher facilitation and lower interference between their goals than those with less adaptive profiles (i.e.

moderate levels of both motives, and profiles with high controlled motives). Our findings partially support our hypothesis.

Our findings suggest that, when striving for goals in two domains, individuals with high autonomous motives for their sporting and academic goals experience facilitation between goals. The profile with the lowest autonomous motives for both goals (Moderate AM, Moderate CM) also reported lower levels of facilitation from their academic goal to their sporting goal than the profiles who had higher autonomous motives (i.e. High AM, Low CM and High AM, High CM). These findings are aligned with the wider SDT literature. Using cluster analysis, Vansteenkiste et al[17] demonstrated that physical education students with higher autonomous motivation reported the most adaptive experiences, regardless of their controlled motivation levels. Similarly, Ratelle et al[26] found benefits for a range of learning outcomes for students with high autonomous, low controlled motivation and those with high autonomous and controlled motivation compared to those with low autonomous, high controlled motivation and low levels of both motivation regulations. Research in a sport setting which explored motivation profiles in relation to well-being has suggested that high controlled motivation can lead to adaptive outcomes when coupled with high autonomous motivation[27]. In the context of our findings, it seems that academic goal striving can facilitate the pursuit of a sporting goal only when autonomous goal motives are high for both goals.

We found no support for the hypothesized differences in facilitation from the sporting to the academic goal among the goal motivation profiles. This may be due to the different priorities placed on academic and sporting goals by student athletes. Research has suggested that within this population, sporting pursuits are prioritized over academic goals[15]. Additional research examining the non-sporting pursuits of elite Australian athletes found that while 72% of athletes felt that their sporting performance had benefitted from their undertaking education or employment, only 59% of the sample felt that their education or employment had benefitted from their sporting pursuits[28]. Our results extend this literature using a British sample; academic goal striving can have a facilitative effect on sporting goal pursuit only when autonomous motivation for both goals is high. Furthermore,

the present findings suggest the reverse effect of facilitation from the sporting goal to the academic goal is not dependent the underpinning goal motivation.

Contrary to our expectations, our findings suggest that differences in goal motivation profiles are not associated with differential levels of inter-goal interference. It is interesting that individuals in all profiles reported moderate levels of interference between their academic and sporting goals. However, this was not moderated by the motives underpinning their goals. This suggests that, in relation to the pursuit of multiple goals across domains, more adaptive forms of motivation cannot protect individuals from inter-goal interference. This is somewhat contradictory to the tenets of SDT[1], as it is proposed that autonomous motivation can lead to positive outcomes (e.g. higher facilitation) and buffer against negative outcomes (e.g. higher interference). It may be that in goal pursuit across multiple domains, high autonomous motivation does not have the same buffering effect as found in previous literature[11]. This unexpected finding warrants future investigation in order to fully understand the association between motivation and inter-goal relations when pursuing goals in multiple domains.

The present study makes a novel contribution to the literature by examining goal motives in multiple-goal situations. However, a limitation is that the analyses used cross-sectional data collected at a single time point. As such, we were unable to determine if goal motives can predict multiple goal attainment. Given that inter-goal facilitation is positively associated with goal progress, we might infer from our findings that, over time, those with an adaptive goal motive profile would have higher levels of attainment for both goals. It is important that future research directly examines the associations between goal motives, inter-goal relations, and goal attainment via a longitudinal design.

Future research could also examine how an individual's goal motives can explain differences in inter-goal relations when pursuing multiple goals in a single domain. In sport, goal setting may be more effective when athletes set goals to work towards across different sport-related contexts (e.g. training and competition) and over different time scales (e.g. short-, medium- and long-term)[29]. Understanding the role of goal motivation in the self-regulation of such multiple goals would be

highly beneficial to athletes and coaches, and would represent an extension of the SC model research to date.

Conclusion

The present study has provided initial understanding of how the motives underpinning goal striving across the academic and sport domains can impact inter-goal relations in student athletes. The findings extend the literature by showing that adaptive goal motivation is also important in multiple-goal pursuit, particularly in relation to inter-goal facilitation. To find balance in pursuits across different settings, it is important for individuals to find enjoyment or interest in their goals within each domain.

Practical implications

- Student athletes strive for their sporting and academic goals for different reasons
- To experience optimum relations between sporting and academic goals, student athletes should try to find personal importance or enjoyment in their goals
- Striving for different goals as a result of pressure or for the avoidance of unpleasant emotions may not necessarily be detrimental for goal relations, as long as the goals are also enjoyable or interesting for the individual.

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